

the forehead,—also in breadth at the ninth tooth to agree with *C. marginatus*, while the converging shape of the forehead differs from both.

I shall add some few other general characters derived from these skulls:—Cranial fossæ somewhat oblong and ear-shaped, converging anteriorly, and almost touching by their inner and anterior margins, the outer side being nearly straight. Orbits with a slight notch anteriorly. Nasal foramen broadly pyriform, and almost quadrilateral. Foramina for the two anterior teeth converted in old specimens into deep notches. Articulating extremities of lower jaw much curved inwards.

I have compared these skulls with twelve others of Indian and American species, from all of which they are quite distinct.

The ninth upper tooth of Crocodiles is said to be enlarged like a canine, but this is not strictly correct. I have examined the dentition in eighteen skulls of various species; in the lower jaw there are always nineteen teeth, but in the upper jaw the number in the adult is seventeen on either side, while in the young it is eighteen. This is owing to the second incisor being deciduous, and in old skulls the socket is completely obliterated by the enlargement of foramen for the two anterior teeth. Thus in old animals there are only four teeth in each intermaxillary bone, while in younger individuals there are always five. So, more strictly, it is the tenth and not the ninth upper tooth which is enlarged.

The characters which I have above enumerated seem to me distinctive, and possibly on further investigation, when the entire animal is examined, and its external characteristics determined, it may prove a new species. The Crocodiles which I saw on the mud banks, or swimming about in the river, appeared of a dark green colour. Adanson mentions two apparently from the upper parts of the Niger, which he distinguished—"Crocodile vert du Niger" and "Crocodile noir du Niger." Whether either of these resembles my specimens I have no means of ascertaining; but Cuvier speaks of African Crocodiles "qui ont la tête un peu plus allongée à proportion de sa largeur," though he adds, "et un peu plus plate, ou plutôt moins inégale, à sa surface." If this prove to be separate I would suggest for it the specific designation *C. Binuensis*, from the name of the river whence I obtained the specimens.

### 3. DESCRIPTIONS OF FOUR UNDESCRIBED SPECIES OF BATS. BY ROBERT F. TOMES.

#### 1. SCOTOPHILUS PACHYOMUS, n. s.

*Muzzle rather obtuse; ears ovoid; tragus short, of nearly uniform breadth, and round at the end. Wing-membranes extending to the base of the toes. Fur bicoloured. Size rather larger than S. noctula.*

This species appertains to the same division of the genus as *S.*

*pipistrellus*, *S. Kuhlii*, *S. marginatus*, *S. minutus*, and perhaps *S. Carolinensis*; but it is to the *S. discolor* of Europe that it bears the greatest apparent resemblance, owing in some measure to the similarity in the quality and colour of the fur.

In size it little exceeds the Noctule Bat, being much the largest species of the restricted group to which it belongs.

The muzzle is somewhat obtuse, the nostrils rather prominent, and opening sublaterally. The ears are rather long, ovoid, and narrowed towards their tips. The tragus is scarcely half the length of the ear, of nearly uniform breadth, round at the end, and slightly curved towards the head.

The wing-membranes extend to the base of the toes; the latter are a little longer than the remaining portion of the foot.

The face is moderately hairy; on the top of the nose, and about the muzzle nearly naked, but with a slight group of hairs on the gland of the upper lip, which extends to the angle of the mouth.

The fur is markedly and singularly bicoloured, very much resembling that of *S. discolor*. That of the upper parts is of a dark brown, conspicuously tipped with whitish brown. Beneath, it is brown at its base, with the terminal half yellowish brown.

The upper incisors are four in number, in pairs, of nearly uniform size, separated from the canines by an interval on each side, and with an interval in the middle, of very moderate extent.

Length of the head and body.....	2	6
——— of the tail .....	1	10
——— of the head.....	0	9
——— of the fore-arm .....	2	1
——— of the longest finger .....	3	9
——— of the fourth finger .....	2	7
——— of the tibia.....	0	10
——— of the foot and claws.....	0	5½
Expanse of wings .....	13	6

*Hab.* India. In British Museum, collected by Capt. Boys.

## 2. SCOTOPHILUS PUMILOIDES, n. s.

*Muzzle tumid; ears small, broadly ovoid, not emarginate, with their tips directed a little outwards. Tragus of nearly uniform breadth, round at the end, and curved inwards. Wing-membranes extending to the base of the toes.*

In its general character this species bears considerable resemblance to the smaller Australian species of Bats, such as *S. picatus*, Gould, *S. Greyii*, Gray, and *S. pumilus*, Gray, all having the forms of the *S. pipistrellus* of Europe, with some slight modifications. As its name indicates, it is most closely affined to *S. pumilus*, but it differs from it in being somewhat larger.

The muzzle is short and rather tumid; the nostrils and lips present no variation from what is usual in the restricted group to which

the species belongs, being in fact similar to the same parts in the common *Pipistrelle*.

The ears are small and very short, being scarcely longer than wide, and are of a tolerably regular ovoid form, but with their extreme tips brought to a blunt angle directed somewhat outwards.

The tragus is about half the length of the ear, of nearly uniform breadth, with a rounded tip, and a slight inward curvature.

As in all the species above enumerated, the wing-membranes extend as far as the base of the toes. The extreme tip of the tail is exerted, and the interfemoral membrane is marked with twelve transverse dotted lines.

The fur of the whole of the body is very thick and close, that of the back extending on to the interfemoral membrane for nearly a fourth of its length. In one example, the fur of the pubes also extends on to the membrane around the root of the tail; but this appears to be an exception.

On all the upper parts the fur is bicoloured, dark at its root, with the terminal third yellowish-brown; beneath it is similar, but the tips are pale brown with a slight olive-yellow cast, which is most conspicuous on the pubes and flanks.

The cutaneous system is of a medium brown colour.

The dentition has not been examined.

	"	"	"	"
Length of the head and body . . . .	1	6	1	6
— of the tail . . . . .	1	0	1	3
— of the head, about . . . . .	0	7	0	6½
— of the ears . . . . .	0	3½		
— of the tragus . . . . .	0	2		
— of the fore-arm . . . . .	1	3¼	1	3
— of the longest finger . . . . .	2	4	2	3
— of the fourth finger . . . . .	1	9	1	9
— of the thumb, about . . . . .	0	2½		
— of the tibia . . . . .	0	6	0	5¼
— of the foot and claws . . . . .	0	3¼	0	3½
Expanse of wings . . . . .	9	0	9	3

*Hab.* China.

### 3. VESPERTILIO CHINENSIS, n. s.

*Top of the head very slightly elevated; muzzle rather thick; ears narrow, ovoid; tragus narrow, nearly straight and pointed; wing-membranes extending to the base of the toes; toes longer than the remaining portion of the foot.*

In its general forms this species bears considerable resemblance to *V. murinus* of Europe, but the ears are much narrower. It is also somewhat larger; and if we except the *V. maximus* from South America, is the largest true *Vespertilio* known\*.

\* The specimens of *V. murinus* that I have made use of for comparison with this species, have been received from various parts of the continent of Europe, from

The top of the head is elevated only to a very moderate extent, and the face is rather long and thick. The nostrils are slightly tubular, and open sublaterally. The ears are of a longish oval form, not emarginate, but narrowed towards the tips. They bear greater resemblance to those of *V. Nattereri* than to those of any other species with which I am acquainted, but are relatively more narrow towards the ends. The tragus is narrowish at its base, from which it expands to near its middle, which is the widest part. From this it tapers to an acute point, having a slight inward tendency.

The wing-membranes extend to the base of the toes, and the latter are longer than the remaining part of the foot, just as in *V. murinus* and *V. formosa*, Hodgs.

The forehead is hairy, and the hair extends nearly to the end of the nose. On the upper lip is a thick moustache, the space around the eye being the only part of the face which is naked.

The fur is longish, fine in texture, and rather cottony, but not very thick. It does not anywhere encroach on the membranes.

All the upper parts are very dark brown, with the extreme tips of the hairs a little paler. Beneath, nearly similar, but the tips of the hairs are pale grey-brown on the breast and belly, whilst the sides of the body and pubal region are almost black.

The membranes are very dark.

Length of the head and body, about . . . . .	3	9
——— of the tail . . . . .	2	2
——— of the head . . . . .	1	0
——— of the ears . . . . .	0	8
——— of the tragus . . . . .	0	3½
——— of the fore-arm . . . . .	2	5½ or 6
——— of the longest finger . . . . .	4	0
——— of the fourth finger . . . . .	2	3
——— of the thumb . . . . .	0	6 or 6½
——— of the tibia . . . . .	1	1
——— of the foot and claws . . . . .	0	7
Expanse of wings, about . . . . .	16	0

*Hab.* China, collected by Mr. Fortune.

#### 4. VESPERTILIO BLYTHII, n. s.

*Ears ovoid, somewhat pointed, their ends sloping outwards.*

*Tragus narrow and tapering to a subacute point. Crown moderately elevated. Feet large, wholly disengaged from the wing-membranes.*

In form and proportion this species resembles *Vesp. macropus*, Gould, from Australia, and in colour is somewhat like *V. ferrugineus*, Temm., from South America, both having the same subgeneric cha-

Algeria, and from Nubia. Those from Switzerland are the only ones that appear to approach it in size; but even they, although perfectly adult, are decidedly smaller, whilst the species I am describing presents indications of youth in the imperfectly ossified condition of the finger-joints.

acters as *V. Hasseltii*, *V. Carolii*, *V. Daubentonii*, and *V. dasy-cnemus*.

To the restricted group of which the above are representatives, Prince C. L. Bonaparte has given the name of *Cappacinius*, whilst Dr. Gray distinguishes it by the name of *Trilatitius*.

The crown is moderately elevated, and the snout is of medium length and substance. The ears are oval, somewhat pointed, and have their tips directed a little outwards. The tragus is narrow, and tapers evenly to a subacute point, which has a very slight outward tendency.

The wing-membranes extend only to the distal extremity of the tibia, leaving the feet wholly disengaged. The latter are large, and have the toes longer than the remaining part of the foot.

On the interfemoral membrane may be observed about eight strongly marked transverse lines. The tip of the tail is free for the length of its terminal joint.

The wings are ample and broad, as the length of the fingers relatively to each other, and to the other dimensions, as given below, will testify.

The fur of the forehead approaches to near the end of the nose, but around the eyes the face is nearly naked, and the upper lip is destitute of a moustache. All the membranes are naked.

The fur is long, rather soft, and inclining to silky on the upper parts. On the whole of the upper surface of the body it is dark brown at the root, with its terminal half cinnamon-brown, brightest on the rump, and tinged with grey on the head and neck. Beneath it is dark at its base, with its terminal half brownish-white. Both above and beneath, the bicoloured character of the fur is conspicuous, and, as already mentioned, bears some resemblance in this respect to that of *V. ferrugineus*.

Length of the head and body, about . . . .	2	3
——— of the tail . . . . .	1	9 or 10
——— of the head . . . . .	0	10?
——— of the ears . . . . .	0	7½
——— of the tragus . . . . .	0	4
——— of the fore-arm . . . . .	2	2 or 3
——— of the longest finger . . . . .	3	10
——— of the fourth finger . . . . .	3	0
——— of the thumb . . . . .	0	5
——— of the tibia . . . . .	0	11
——— of the foot and claws . . . . .	0	6½
Expanse of wings . . . . .	15	0

*Hab.* A single specimen in the British Museum Collection is labelled "India, Nassenabad, from Mr. Warwick, 1848," and, I believe, was collected by Capt. Boys.